ABSTRACT

Implementation process of an automation system for the chamfer process on the Bench Lathe SD-32A Machine by adding one part to the machine, namely sorting body. In addition, the function of the machine is combined with the Vibratory Bowl Feeder (VBF) Machine using a connector. However, there was a problem in the process of moving the workpiece non-smoothly from the VBF Machine to the sorting body. This is because in the previous study there were no concepts and methods used to design the connector, so that in the design process of the connector did not consider the robust design aspect. Therefore, in this research is done to design the needs attribute of the connector design concept using Quality Function Deployment method with House of Quality tool. Acquired eight attributes of necessity with eight technical characteristics and resulted in three proposed design concepts. Furthermore, in this study conducted random vibration testing using Ansys 18.1 Software with vibration frequency, namely 50 Hz and 100 Hz to know the equivalent stress value of each concept. The value of equivalent stress of A concept is 245.62 MPa, equivalent stress of B concept is 163.37 MPa and equivalent stress of C concept is 87.37 MPa. Thus, the resulting recommendation is the design of the connector for Vibratory Bowl Feeder machine with the smallest stress value of 87.37 Mpa.

Keyword: Connector Vibratory Bowl Feeder Machine, Quality Function Deployment, House of Quality, Robust Design.